REMARKS

Favorable reconsideration of this application is respectfully requested in view of the following remarks.

The specification, including the Abstract of the Disclosure, has been amended to address the issues raised at the bottom on page two and the top of page three of the Official Action. It is noted in connection with the amendment to the paragraph beginning at the bottom of page 30 that the phrase "multiplicative fluctuation (s)" has been changed to --multiplicative fluctuation $\Delta(s)$— for purposes of consistency with the illustration in Fig. 20. Accordingly, withdrawal of the objections to the disclosure and the Abstract of the Disclosure is respectfully requested.

Claims 1, 2 and 12 have been amended without narrowing the claims scope to adopt the Examiner's helpful suggestion set forth in the middle of page two of the Official Action concerning the recitation of "the other shift stage." Accordingly, withdrawal of the claim rejection based on the second paragraph of 35 U.S.C. § 112 is respectfully requested.

The claims currently pending in this application are Claims 1-12, with Claims1, 2 and 12 being the only independent claims. Independent Claims 1 and 2 are directed to a control apparatus for controlling the shift operation in an automatic transmission, while Claim 12 is drawn to a method of designing a control apparatus to control the shift operation in an automatic transmission.

Looking first at independent Claim 12, the claimed method involves interpreting a response characteristic of a slip amount relative to an input to the automatic transmission as a transfer function within a frequency domain, defining a reference model capable of obtaining an ideal slip amount response characteristic

for restraining shift shock, constructing a feedback control system provided with an integral-proportional controller relative to the interpreted transfer function of the automatic transmission, and adjusting a proportional gain and an integral gain for the integral-proportional controller to substantively correspond or approximate the response characteristic of the slip amount in the feedback control system to the ideal response characteristic of the reference model.

This claimed method differs from the disclosure contained in European Application Publication No. 0 565 383 to *Fujita et al.* at least with respect to the claimed feedback control system. As set forth in independent Claim 12, the feedback control system is provided with an integral-proportional controller relative to the interpreted transfer function of the automatic transmission. In addition, a proportional gain and an integral gain are adjusted to substantially correspond or approximate the response characteristic of the slip amount in the feedback control system to the ideal response characteristic of the reference model. This is not disclosed in *Fujita et al.*

Fujita et al. discloses a speed change control method and automotive automatic transmission which, as illustrated in Fig. 11, utilizes feedback control in connection with the turbine rotational speed Np. This feedback control involves obtaining the turbine rotational speed changing rate (Nt)` and the output shaft rotational speed changing rate (No)`. An actual slip rotational speed changing rate (Ns)` is then determined by subtracting the product of the output shaft rotational speed changing rate and the gear ratio K2 from the turbine rotational speed changing rate. Thereafter, the controller reads an initial duty factor Da0 for a

second-speed solenoid valve 11`, and reads a target slip rotational speed changing rate (Ni)`.

Although *Fujita et al.* mentions feedback control, *Fujita et al.* does not describe utilizing a feedback control system provided with an integral-proportional controller relative to an interpreted transfer function of the automatic transmission, together with the other subject matter recited in independent Claim 12.

Independent Claims 1 and 2 directed to the control apparatus have been amended to recite that the feedback control performed by the disengaging side controlling means is an integral-proportional feedback control. Once again, *Fujita et al.* does not disclose a control apparatus utilizing an integral-proportional feedback control in combination with the other features recited in independent Claims 1 and 2.

For at least the reasons set forth above, it is submitted that independent Claims 1, 2 and 12, and the various dependent claims, are patentably distinguishable over the disclosure contained in *Fujita et al.* Accordingly, withdrawal of the rejection based on the disclosure in that document is respectfully requested.

The only other issue raised in the Official Action involves the obviousness-type double patenting rejection of the claims in this application based on Claims 11-15 of the assignee's U.S. Patent No. 6,480,777. This rejection is respectfully traversed for at least reasons similar to those discussed above in connection with the analysis of *Fujita et al.* Claim 12 of the '777 patent states that the controller is a feedback controller for the controlled object, and Claim 14 goes on to recite that the feedback controller includes an idling time compensator which compensates an idling time of a hydraulic pressure system. However, these claims do not refer to an integral-proportional feedback control as recited in independent Claims 1 and 2 and

do not define a feedback control system provided with an integral-proportional controller as set forth in independent Claim 12. Thus, withdrawal of the obviousness-type double patenting rejection is also respectfully requested.

It is believed that this application is in condition for allowance and such action is earnestly solicited.

Should any questions arise in connection with this application or should the Examiner believe that a telephone conference with the undersigned would be helpful in resolving any remaining issues pertaining to this application, the undersigned respectfully requests that he be contacted at the number indicated below.

Respectfully submitted,

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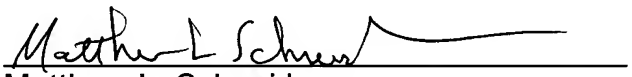
Date: December 22, 2004

By: 
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